

# Notice of Allowability

Application No.

09/742,472

Examiner

Daniel L. Greene

Applicant(s)

VALENTINE ET AL.

Art Unit

3621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/10/2005.
2. ☒ The allowed claim(s) is/are 1-17 and 20.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☒ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date 7/11/2005.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 5/31/2005
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date 7/7/2005.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

*Figure in BACK cover  
Primary Examiner  
3621*

## **DETAILED ACTION**

### **Drawings**

The following changes to the drawings have been approved by the examiner and agreed upon by applicant: Figure 1, Box 1033, change "inputted" to imputed, Figure 3 A, Box 1207, change "inputted" to imputed, and Figure 5A, Box 1409, change "inputted" to imputed. The changed drawings are incorporated into the present Office Action.

### ***Information Disclosure Statement***

1. The information disclosure statement (IDS) submitted on 3/9/01, 5/29/01, 7/2/01, 8/31/01, 8/18/01, 9/12/03, 2/10/04, 2/17/04, 3/29/04, 7/14/04, 9/17/04, 9/13/04, 12/16/04, 2/7/05, 5/31/05, 7/12/05, and 7/25/05 was filed after the mailing date of the Application on 12/20/2000. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner is considering the information disclosure statement.

### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Kang Lim on 7/10/2005.

The application has been amended as follows:

✓ Claims 18 and 19 have been cancelled because they do not include imputing of data.

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1: A method for imputing econometric variables from corrected raw econometric data, the method being implemented as a plurality of program instructions in a computer system, the method comprising:

detecting, using the computer system, product parameter inconsistencies in the raw econometric data;

correcting, using the computer system, the detected inconsistencies in the raw econometric data to generate a cleansed initial dataset; and

generating, using the computer system, imputed econometric variables using the cleansed initial dataset.

Claim 2: The method of Claim 1, wherein the imputed econometric variables include imputed variables selected from the group consisting of an imputed base price variable, an imputed relative price variable, an imputed base volume variable, an imputed variable reflecting the effects of stockpiling, an imputed variable

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reflecting seasonal effects, an imputed variable reflecting day-of-the-week effects, an imputed variable reflecting promotional effects, and an imputed cross-elasticity variable.

Claim 3: The method of Claim 2, wherein the imputed econometric variables include imputed variables selected from the group consisting of an imputed base price variable, an imputed relative price variable, an imputed base volume variable, an imputed variable reflecting the effects of stockpiling, an imputed variable reflecting day-of-the-week effects, an imputed variable reflecting promotional effects, and an imputed cross-elasticity variable.

Claim 4: The method of Claim 1, wherein imputing econometric variables include imputing a base price variable.

Claim 5: The method of Claim 4, wherein imputing base price variable comprises:

- defining a time window for analyzing records of the cleansed initial dataset;
- determining an initial base based on data within the time window; and
- outputting the initial base price as the base price variable.

Claim 6: The method of Claim 4, wherein imputing base price variable comprises:

- defining a time window for analyzing records of the cleansed initial dataset;
- determining an initial base price based on data within the time window;
- determining promotional affects on the initial base price based on data within the time window;

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defining a step function for initial base price based on data within the time window;

calculating price discount variables;

outputting initial base price step function and discount variables;

analyzing and correcting the outputted initial base price variable based on base price distribution data and generating a refined base price variable; and

outputting the refined base price variable.

Claim 7: The method of Claim 1, wherein imputing econometric variables includes imputing a relative price variable.

Claim 8: The method of Claim 7, wherein imputing relative price variable comprises:

determining equivalent price for price values in the cleansed initial dataset;

determining equivalent units for unit's values in the cleansed initial dataset;

calculating values for equivalent base price and equivalent base units;

determining a weighted equivalent average price;

determining a weighted equivalent average base price;

calculating moving averages for relative equivalent price and relative equivalent base price; and

outputting relative equivalent price and relative equivalent base price as relative price variables.

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Claim 9: The method of Claim I, wherein imputing econometric variables includes imputing a base volume variable.

Claim 10: The method of Claim 9, wherein imputing base volume variable comprises:

- analyzing the cleansed initial dataset to determine non-promoted dates;
- calculating average sales volume during the non-promoted dates;
- determining an initial units value based on the cleansed initial dataset and the calculated average sales volume during the non-promoted dates;
- determining a moving average value for initial units; and
- outputting the moving average value for initial units as the imputed base volume variable.

Claim 11: The method of Claim 1, wherein imputing econometric variables includes imputing a variable reflecting the effects of stockpiling.

Claim 12: The method of Claim I, wherein imputing econometric variables includes imputing a variable reflecting day-of-the-week effects.

Claim 13: The method of Claim 12, wherein imputing variable reflecting day-of-the-week effects comprises:

- assigning each record of the cleansed initial dataset to a specific day of the week;
- specifying an input dimension;
- summing each assigning record over the specified input dimension;

determining, for each specific day of the week, an average amount of units sold for each day; and

determining for each day of the week, using actual daily units sold divided by average amount of units sold for each day, a relative daily volume of units sold variable.

Claim 14: The method of Claim 1, wherein imputing econometric variables include imputing variable reflecting promotional effects.

Claim 15: The method of Claim 14, wherein imputing variable reflecting promotional effects comprises:

using cleansed initial dataset and calculated values for base units, determining crude promotional variable;

conducting simple regression analysis to obtain initial volume model;

comparing sales volume results generated by the initial volume model with actual sales volume; and

adjusting initial volume model to reflect inconsistencies between the initial volume model and the actual sales volume to generate a corrected volume model, which comprises an imputed, promotional affects variable.

Claim 16: The method of Claim 1, wherein imputing econometric variables includes imputing a cross-elasticity variable.

Claim 17: The method of Claim 16, wherein imputing cross-elasticity variable comprises:

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inputting demand group information from the cleansed initial dataset;  
calculating equivalent sales volume for each demand group per time period;  
calculating average equivalent sales volume for each demand group per time period;

calculating relative equivalent sales volume for each demand group per time period; and generating cross-elasticity variables for each demand group.

Claim 18: Cancelled.

Claim 19: Cancelled.

Claim 20: A computer-readable medium having programming instructions arranged to impute econometric variables from raw econometric data, the computer readable medium including:

programming instructions for receiving the raw econometric data;  
programming instructions for detecting product parameter inconsistencies in the raw econometric data;

programming instructions for correcting the detected inconsistencies in the raw econometric data to generate a cleansed initial dataset; and

programming instructions for generating imputed\_econometric variables using the cleansed initial dataset.

Claim 21 (Previously Canceled)



### **REASONS FOR ALLOWANCE**

As per claims 1 and 20, the closest prior art of record Dulaney et al. U.S. Patent 6,341,269 [Dulaney] and Maeda et al. U.S. Patent 5,377,095 [Maeda] taken either individually or in combination with other prior art of record fails to teach or suggest the imputing or imputation steps as recited in the claims of the instant invention. The imputation step solves the problem of generating econometric variables from missing or incomplete data sets. It is not possible to generate such variables by simply inputting data as taught by Dulaney and Maeda. Dulaney, for example, takes point of sale data and imports the data into an optimization scheme. The instant invention, on the other hand, takes point of sale information, which may have missing or incomplete data, and imputes useful variables, which may then be used for optimization or other useful purposes. Imputation of econometric variables is neither taught nor suggested in the prior art. Hence, claims 1-17 and 20 are allowable over the cited art.

The specific allowable feature, which distinguishes the present invention over the prior art is the imputing or imputation steps as recited in the claims of the instant invention. The imputation step solves the problem of generating econometric variables from missing or incomplete data sets. It is not possible to generate such variables by simply inputting data as taught by Dulaney and Maeda. .

Claims 2-17 is dependent upon Claim 1 and thus have all the limitations of claim 1 and are allowable for that reason.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel L. Greene whose telephone number is 571-272-6707. The examiner can normally be reached on M-Thur. 8am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James P. Trammell can be reached on 571-272-6712. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel L. Greene  
Examiner  
Art Unit 3621

7/11/2005

*Daniel L. Greene*  
Primary Examiner

*Corrected  
drawings  
8/14/05  
DJB*

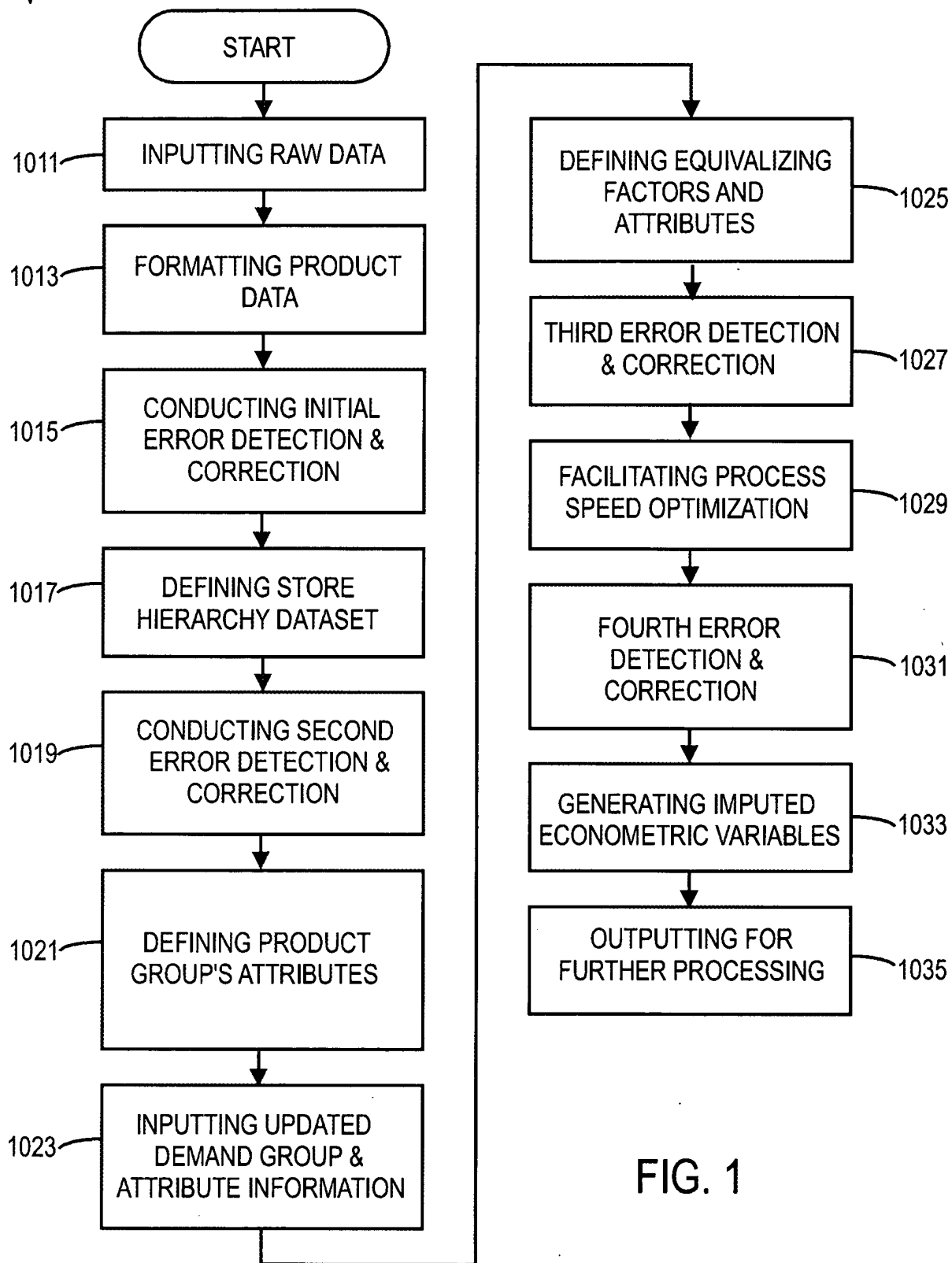


FIG. 1

*Corrected  
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PJS*

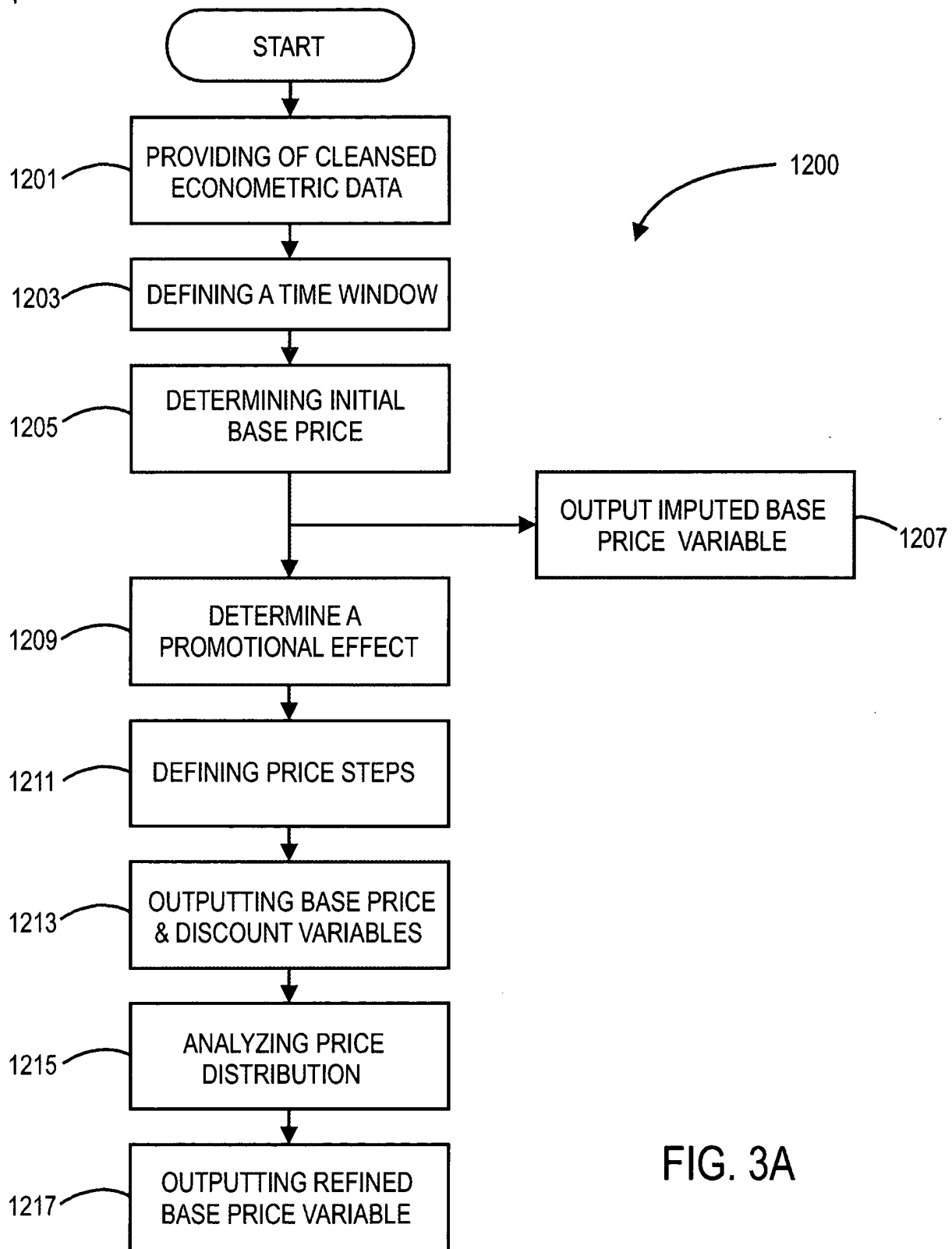


FIG. 3A

Corrected  
drawing  
8/1/05

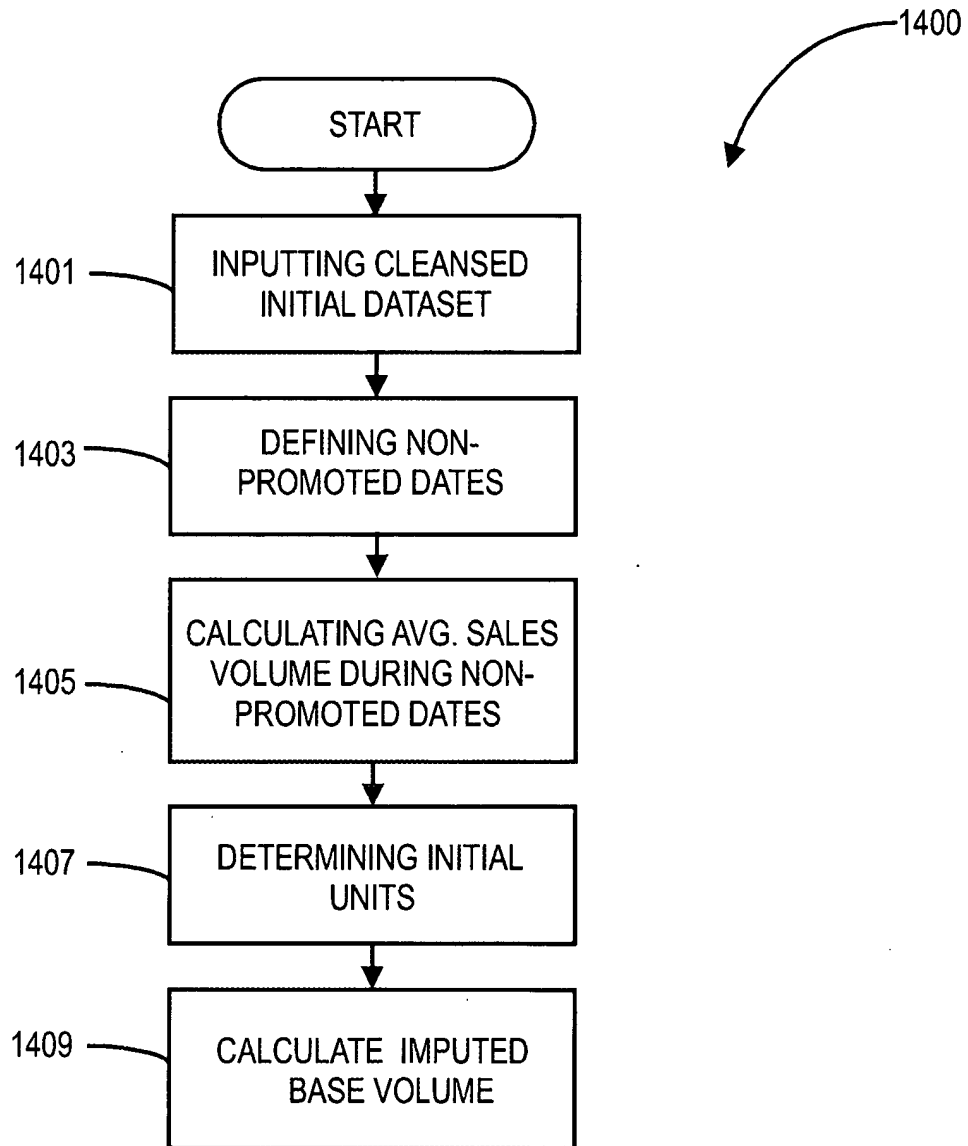


FIG. 5A